

REMARKS

Claims 8-12 and 14-23 remain in this application.

In the above-mentioned Office Action, the examiner has rejected claim 8 as anticipated under 35 U.S.C. § 102(b) by Mitsuyasu et al (Mitsuyasu) and rejected claims 9, 14 and 23 as unpatentable under 35 U.S.C. § 103(a), over the combination of Mitsuyasu and Wildeson et al (Wildeson). Claims 10-12 and 15-22 were indicated to be allowable, subject to being rewritten to avoid depending upon a rejected claim.

The rejection of claims 14 and 23 is believed to be in error since these claims were previously indicated to be allowable. These claims positively recite leakage grooves in the annular seal support disc, and nothing in the references relied upon in making the rejection suggest such structure. The examiner's characterization of a leakage port in the Mitsuyasu pressure booster cylinder wall and injector housing as suggesting leakage grooves in the annular support disc is not justified.

The rejection of claims 8, 9 and 23, as amended, is not believed to be justified and is therefore respectfully traversed. The examiner's characterization of the Mitsuyasu cylinder (7) as an annular support disc as this term is used in applicant's claims. The function of applicant's support disc is to support the resilient seal element to prevent the seal from being extruded out through the gap between the housing and the valve element of the injector. To this end, the support ring is clearly recited as contacting the valve element around its inner periphery.

In the Mitsuyasu injector, two annular sealing elements (O-rings) are disposed in grooves between the pressure booster's slipped piston 8 and the surrounding slipped cylinder wall 7. In operation, the moving piston is in contact with the surfaces of the seal elements; there is no suggestion that this cylinder 7 contact the piston around its inner periphery. Certainly there is no suggestion that the pressure booster cylinder is a seal support disc as recited in claim 8, and therefore also in claim 9 depending therefrom.

It is also submitted that even if Mitsuyasu's cylinder were considered to be a continuous annular support disc, this "support disc" does not engage a valve element of a fuel injector around its inner circumference, as required by claims 8, 9 and 14. The Mitsuyasu injector simply does not disclose a valve element; instead, this reference discloses a hydraulic booster consisting of a stepped cylinder, a stepped piston movable in the stepped cylinder, and an activation for producing the movement. Conventional O-ring seals are provided between the piston and cylinder walls, but there is no suggestion of an annular disc engaging and supporting the O-ring seals.

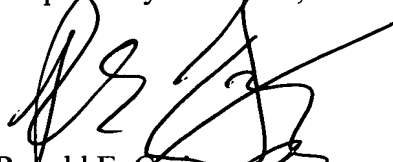
Although claim 23 defines the invention in somewhat different language, the comments above with regard to claim 8 are also applicable to this claim, and to claim 14 depending therefrom. Further, as stated above, the references do not disclose or suggest leakage grooves in an annular support disc disposed in an annular chamber between an injector housing and a valve element and engaging a seal element in the chamber.

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Amdt dated September 15, 2004
Reply to Second (non-final) Office action of August 3, 2004

In view of the requested amendment to the claims, and of the comments contained herein, it is respectfully submitted that all the claims are now patentable over the references cited upon.

Reconsideration and allowance is therefore respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. Greigg', written over the printed name.

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